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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/623,268	08/30/2000	Frank Filser	00-497	1826

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EXAMINER

HOFFMANN, JOHN M

ART UNIT	PAPER NUMBER
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1731

DATE MAILED: 07/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/623,268

Applicant(s)

FILSER ET AL.

Examiner

John Hoffmann

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 19 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 16-40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 16-40 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 16-40 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term “preprepared” is indefinite as to its meaning. It is unclear to what degree it must be “PRE” prepared. And what steps must be done to make it post-preprepared and then to make it post prepared.

Claim 18: there is no antecedent basis for “the theoretical possible density”. It is unclear if this would be any possible density – or the maximum theoretical possible density or even the minimum theoretical possible density. It is unclear if the  $P_s$  is related to the  $p_s$  of claim 16: looking to the original claims, they are the same thing. There is no antecedent basis for “the machined enlarged model” – from claim 16 the enlarged model is not made – only a “design form” is made/machined. It is unclear if the sintering of claim 18 is in addition to the sintering of claim 16, or if it further defines it. All these things apply to claims 19-20 too.

Claim 33, step c – there is no antecedent basis for “the obtained data”.

Claims 22-23: there is confusing antecedent basis for “processing” – is it the same as that of claim 16?

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Claim 27: it is unclear if the presintering further defines the implied presintering, or if it means that it is twice presintered.

Claim 28: Examiner does not understand the formula. Namely, the  $-(4n_2)_x$  part. Examiner has never seen anything like it. Further, although "n" is defined,  $n_2$  is not. There is no explanation or examples of this in the specification.

Claims 29 and 34 : it is unclear if "the material" refers to the material of claim 28 or claim 16.

Claim 35: it is unclear what is meant by "temporally" decoupled. It would seem that such suggests one or the other is placed in a time machine. Also, it is unclear what is decoupled: and if it is even suppose to be a step of decoupling. All other steps are in the -ing form, rather than the pass tense -ed form. There is confusing antecedent basis for "the material" of the second to last line: it is unclear if it is the already removed material (4<sup>th</sup> to last line).

Claim 35, Line 15 there is confusing antecedent basis for "inner...surfaces". It is unclear if it is the same surface of line 4. Furthermore, if the material is removed from a surface, then that surface no longer exists.

Claim 36: there is confusing antecedent basis for "a skeletal structure"

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### ***Claim Objections***

Claims 21-27 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim.

Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

These claims appear to be directed to preparing the preprepared blanks. But claim 16 requires that the preprepared blanks are processed. If the preprepared blanks are prepared (as per claims 21-24) they are no longer "preprepared". At any given time the blanks can be either prepared or preprepared. If the blanks are ever prepared, then no longer does a preprepared blank exist and thus it would be impossible to process the preprepared blank. One cannot process what does not exist.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 16-40 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

There is no support for the blank being "preprepared". Examiner could find no explicit or implicit support (in the disclosure as originally filed) for this limitation. The burden is on applicant to demonstrate there is support for this limitation.

Claim 35 calls calculating shrinkage of an inner surface (line 4) there is no support for this. There is support for calculating bulk shrinkage, but not a surface shrinkage. A surface shrinkage would have a different calculation from that of the bulk. There is no support for removing material from an inner surface of a blank (4<sup>th</sup> to last line). From [0052] of the present specification, the blanks are cubes or cylinders – they don't have inner surfaces. Thus one cannot remove material from an inner surface of the blank.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 16-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wohlwend 6106747.

The invention is disclosed at col 3, lines 24-42 and col. 4, lines 51-54. Feature 10 is the blank – which would inherently have both densities. As to the digitizing – it would have been obvious to digitize it – at least into binary digits – because that is how

most computers store data. As to the enlargement factor – it is inherent that it was determined some how – by calculating, guessing, ouiji board, or some other way.

As to  $f$  being “in accordance” – such is not given much weight. First, since Wohlwend gets the same results as applicant, Wohlwend would inherently have the same factor. Second – the densities are “relative” and there is no indication as to what they are relative to. One could say that each density is relative to each other density by the factor of either  $f^3$  or  $f^{-3}$ . Where  $f$  is Wohlwend’s enlargement factor. Furthermore – as per the letters from various experts: the enlargement factor is routinely used – it is “standard”.

It would have been obvious to apply the factor in all directions – because the body would shrink in all directions.

As to the data transferring step: see the transmitting of col 3, line 40. The rest of the limitations are clearly met.

Claim 17: the claim does not indicate how fine the margins must be. It is clear they are fine enough for the Wohlwend purpose. Alternatively, it would have been obvious to make the margins as fine as desired and achievable.

Claims 18-20: It would have been obvious to sinter to the final degree desired – i.e. 100% of the theoretical designed density – it is inherent that it is possible.

Claim 21: see claim 3 of the reference.

Claim 22: it is a well known machine practice to have a rough machining step to quickly remove most of the unwanted material, followed by a fine machining so as to fine-tune the surfaces.

Claims 23-24: it would have been obvious to heat treat the blank where needed for the particular ceramic material used. For example, if the blank is damp, one would want to dry it out, so that the water inside doesn't form explosive steam which ruptures the blank.

Claim 25-26, would have been obvious because it is well known that things can expand when wet. One would want the blank to be at the known density –and not at unknown density due to water content.

Claims 27-28: see col. 5, lines 15-25. It alumina or zirconium oxide presinters at 1080C.

Claim 29: as best understood the claim would have been met because such are typical binders to allow green bodies to have some strength before sintering. See col. 4, lines 18-20 for example.

Claims 30-31: it would have been obvious to perform routine experimentation to determine the optimal amount of binder that is needed.

Claim 32: in addition to the way claim 16 is treated (above): claim 32 requires moving the tool along a devised path. This is not disclosed. It would have been obvious to have machining already programmed (i.e. devised) because doing it randomly probably would not work, and doing it by hand would not be cost effective. It is deemed that moving the tool would be essentially the same as moving the blank into the tool – with no new or unexpected results.

Claim 33 has an additional step of sintering a further piece. It would have been obvious to repeat the Wohlwend process as many times as needed for as many teeth



as desired. The claim does not specify when the further piece is sintered. The additional skeletal structures would be further pieces that are sintered.

Claim 34: as best understood the claim would have been met because such are typical binders to allow green bodies to have some strength before sintering. See col. 4, lines 18-20 for example.

Claims 35-40 are not met by the prior art because of the removing material from an inner surface of a blank. There would be no motivation to use a blank with a concavity. However this should not be interpreted as an indication that these claims are allowable because they are rejected on other grounds.

### ***Response to Arguments***

Applicant's arguments with respect to claims 16-40 have been considered but are moot in view of the new ground(s) of rejection.

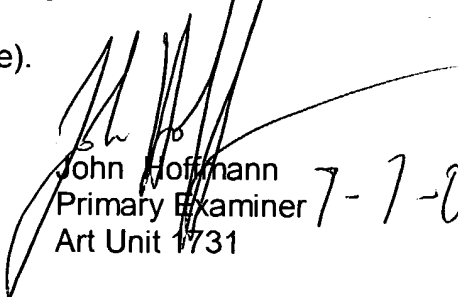
The prior examiner did not hold the claims to be indefinite in the manner the current examiner does. This is probably due to the former examiner being familiar with the theoretical one-of-ordinary-skill in this art. The present examiner is not so familiar with the art and thus is more easily confused in interpreting the claims and therefore needs the claims to be more definite so as to understand the metes and bounds of what Applicant is claiming.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Hoffmann whose telephone number is (571) 272 1191. The examiner can normally be reached on Monday through Friday, 7:00- 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
John Hoffmann  
Primary Examiner  
Art Unit 1731

7-7-04

jmh